## AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 1, line 3 of the specification as follows:

(Currently Amended) This application is a continuation ~~continuation-in-part~~ application of Application Serial No. 09/958,263, filed March 6, 2002, now U.S. Patent No. 6,685,632 ~~pending~~; which is a national stage filing under 35 U.S.C. Section 371 of PCT/US00/12239 filed May 4, 2000; which is a continuation-in-part application of Application Serial No. 09/305,903, filed May 4, 1999, now U.S. Patent No. 6,231,506; and a continuation-in-part application of Application Serial No. 09/305,810, filed May 4, 1999, now U.S. Patent No. 6,331,158; and a continuation-in-part application of Application Serial No. 09/305,811, filed May 4, 1999, now U.S. Patent No. 6,283,912; and a continuation-in-part application of Application Serial No. 09/305,813, filed May 4, 1999, now U.S. Patent No. 6,290,644; and a continuation-in-part application of Application Serial No. 09/372,661, filed August 11, 1999, now abandoned; which is a continuation-in-part application of Application Serial No. 09/305,810, filed May 4, 1999, now U.S. Patent No. 6,331,158. We hereby incorporate herein each of the foregoing applications and patents, in their entireties, by reference thereto, and we claim priority to each under 35 USC §120.

Please amend the paragraph beginning on page 1, line 24 of the specification as follows:

(Currently Amended) To restore the flow of blood to the heart, the CABG procedure requires that a fluid connection be established between two vessels. This procedure is know as an "anastomosis". Typically, a source vessel, such as a source artery with an unobstructed blood flow, e.g., ~~i.e.,~~ the left internal mammary artery (LIMA), or a bypass-graft having one ~~to~~ end sewn to an unobstructed blood source such as the aorta, is sewn to a target occluded coronary artery, such as the left anterior descending (LAD) artery or other vessel, that provides blood flow to the muscles of the heart.

Please amend the paragraph beginning on page 2, line 1 of the specification as follows:

(Currently Amended) patient to a heart-lung bypass machine, cuts off the blood flow to the heart, and then ~~then.~~ stops the heart from beating in order to complete the bypass. The most lengthy and traumatic surgical procedures are necessary, in part, to connect the patient to a cardiopulmonary bypass (CPB) machine to continue the circulation of oxygenated blood to the rest of the body while the bypass is completed.

Please amend the paragraph beginning on page 2, line 12 of the specification as follows:

(Currently Amended) Despite the advantages, the beating-heart CABG procedure is not universally ~~to~~ practiced, at least in part, because of the difficulty in performing the necessary surgical procedures using conventional surgical instruments. For example, it has been difficult for the surgeon to access the ~~required~~ areas of the heart requiring revascularization. In addition, the various surgical steps that are required to be performed on the heart itself are more difficult to perform because the heart muscle continues to move and contract to pump blood throughout the duration of the procedure.

Please amend the paragraph beginning on page 3, line 3 of the specification as follows:

(Currently Amended) In view of the foregoing, it would be desirable to have improved devices for accessing and effectively stabilizing the beating heart at the site of the anastomosis. It would be desirable to have a retractor system that provides unobstructed and organized access to the areas of the heart requiring revascularization. It would be further desirable to provide a low-profile atraumatic ~~a traumatic~~ stabilizing device that stabilizes the beating heart at the site of the anastomosis and provides a favorable presentation of the target vessel and the arteriotomy. It would be further desirable to provide a mount for the stabilizing device, or other instruments, that allows the stabilizing device to be easily maneuvered to the desired position and orientation, fixedly secured until the procedure is completed, and then easily removed form the site of the anastomosis.

Please amend the paragraph beginning on page 4, line 8 of the specification as follows:

(Currently Amended) The articulating joints may be any mechanical configuration which provides the desired degrees of freedom for maneuvering a surgical instrument. Preferably, the first

articulating joint comprises a ball-type joint or a ball and socket joint. The ball and socket joint may comprise a ball-shaped member extending form the base portion and a ~~to~~ cooperating socket formed within the mount body. The second articulating joint may preferably comprise a ball and socket joint or a rotational joint. When the second articulating joint is configured as a rotational joint, it may comprise a frustoconical member extending from the side portion and a cooperating frustoconical cavity within the mount body.

Please amend the paragraph beginning on page 5, line 1 of the specification as follows:

(Currently Amended) articulating joint along a second axis and has an end portion engaging the side portion and a threaded portion. A knob ~~is~~ may be provided having an internal bore for receiving at least a portion of the pin, the internal bore having threads adapted to engage the threaded portion of the pin. The knob may preferably have a thrust surface associated therewith adapted to engage and move the post as the knob traverses over the threaded portion of the pin in response to rotation of the knob.

Please amend the paragraph beginning on page 5, line 6 of the specification as follows:

(Currently Amended) Again, the articulating joints may be any mechanical configuration which provides the desired degrees of freedom for maneuvering a surgical instrument. Preferably, the first articulating joint comprises a ball-type joint or a ball and socket joint. The ball and socket joint may comprise a ball-shaped member extending form the base portion and a cooperating socket formed within the mount body. The second articulating joint may ~~to~~ preferably comprise a ball and socket joint or a rotational joint. When the second articulating joint is configured as a rotational joint, it may comprise a frustoconical member extending from the side portion and a cooperating frustoconical cavity within the mount body.

Please amend the paragraph beginning on page 5, line 25 of the specification as follows:

(Currently Amended) When the post is urged in a first direction along the first axis, the first articulating joint preferably becomes locked. When the first articulating joint is a ball and socket joint formed between a ball extending from the base portion and a socket formed within the mount

body, the ball and socket become locked by operation of the first end of the post which engages the base portion and forces the two together as the post is urged upwards. When the post moves in the opposite direction, the articulating joint returns to a condition which allows relatively free articulation. A second end of the post ~~is~~ may be constrained within a top opening provided in the mount body. Preferably, the second end is slidable within the top opening generally along the first axis.

Please amend the paragraph beginning on page 8, line 6 of the specification as follows:

(Currently Amended) Figure 47 is a perspective view illustrating another tissue stabilizer embodiment ~~5~~ having a moveable ball/post.

Please amend the paragraph beginning on page 10, line 25 of the specification as follows:

(Currently Amended) Each of the principal components, the preferred surgical system, and their methods of use are separately described in detail below. A preferred retractor according to the principles of the present invention is described below with reference to Figures 2-12~~212~~. A preferred stabilizer or instrument mount according to the principles of the present invention is described below with reference to Figures 13-32. Preferred stabilizer embodiments according to the principles of the present invention are described below with respect to Figures 33-44. A preferred surgical system and methods for performing a coronary artery bypass on a beating heart according to principles of the present invention is described below with respect to Figure 45.

Please amend the paragraph beginning on page 12, line 21 of the specification as follows:

(Currently Amended) It may be desirable to provide engaging members 18 with features to reduce trauma to the incision site, increase the traction against the sides of the incision, or both. A thin pad or layer of non-slip or atraumatic ~~a traumatic~~ material (not shown) may be fixed, by way of an adhesive or other suitable fastening technique, to the interior profile 17 if desired to reduce slippage and trauma to the severed sternum or surrounding tissue. Alternatively, the desired features may be integrally fabricated into engaging members 18. For example, when platform blades 14 and

16 are injection molded components, traction features such as raised bumps, ribs, indentations, or the like can be molded integrally ~~integral~~ into engaging members 18.

Please amend the paragraph beginning on page 13, line 27 of the specification as follows:

(Currently Amended) Moveable housing 22 has a bore 37 extending therethrough for receiving bar 15. Bore 37 generally has a shape corresponding to the dimensions of the cross-section of the portion ~~potion~~ of the bar 15 which is to pass through bore 36. With handle assembly 24 properly positioned within the guide holes provided in moveable housing 22, it may be assembled to bar 15 by placing the end of bar 15 within bore 36 and turning handle 29 such that first and second drive pins 27 and 28 become engaged with teeth 13. Once assembled in this manner, moveable housing 22 may be forced one way or the other along the length of bar 15 by turning handle 29, and thus drive bearings 31 and 32, to cause first and second drive pins 27 and 28 to progressively engage teeth 13 along bar 15.

Please amend the paragraph beginning on page 14, line 9 of the specification as follows:

(Currently Amended) Referring to Figures 7 and 8, second platform blade 16 is shown before and after assembly onto fixed housing 21. Preferably, at least one of the platform blade 16 or the fixed housing 21 has an extending protuberance, post or like feature which can be receivably engaged by the other of the platform blade or housing. In a preferred ~~preferred.~~ embodiment, fixed housing 21 is preferably constructed to have a latch post 42 adapted to be received within the latch post cavity 45 provided in platform blade 16. Latch post 42 may have a hole, notch, protuberance, or other feature formed therein which may be engaged in any convenient manner by the platform blade 16 so that platform blade 16 becomes releasably locked in place for use.

Please amend the paragraph beginning on page 14, line 17 of the specification as follows:

(Currently Amended) In a preferred embodiment, latch post 16 has a notch which defines latch surface 51 and stop surface 52. Platform blade 16 has a latch member 48, best seen in Figures 11A-11C ~~11A-11A~~, having a latch body 50 constructed with surfaces 53 and 54 for engaging latch surface 51 and stop surface 52 respectively. Generally transverse to latch post cavity 45, platform

blade 16 has a latch body cavity 56 having an opening towards upper surface 57 of platform blade 16 for receiving latch body 50 of latch 48.

Please amend the paragraph beginning on page 15, line 10 of the specification as follows:

(Currently Amended) When the retractor assembly is used to gain access to the thoracic cavity, a good deal of force must be generated to create the desired opening. For example, a separating force in excess of 100 pounds may be required to be generated at each engaging member 18 to achieve the desired separation of a particular sternum. Such loads must be carried by the engaging members and transmitted to drive 12 by way of platform blades 14 and 16. Since platform blades are preferably made form a suitable engineering polymer (for example, a glass filled thermoplastic polyurethane resin), it may be desirable to provide a reinforcing member for each of platform blades 14 and 16 to ensure that platform blades 14 and 16 will not break or be otherwise rendered inoperable as a result of the loads encountered during use.

Please amend the paragraph beginning on page 18, line 18 of the specification as follows:

(Currently Amended) A preferred suture lock 80 is illustrated in Figures 10 and 12. Suture lock 80 has a relatively rigid body 83 having a fixed or pivot end 81 which allows body 83 to pivot within the mating profile of recess 74 or 75. Pivoting the body 83 about pivot end 81 selectively engages and disengages free end 84 against the wall 78 of exit channel 72 or 73 ~~1073~~. Alternatively, suture lock 80 may be made from a more flexible material which, by nature of the elastic properties of the material, tends to flex about its fixed end instead of rotate. In a preferred embodiment, fixed or pivot end 81 is substantially cylindrical and recesses 74 and 75 have mating cylindrical surfaces.

Please amend the paragraph beginning on page 21, line 16 of the specification as follows:

(Currently Amended) In one embodiment, the various joints and connections are locked into a desired position by way of a series of knobs. The degrees of freedom provided by ball joint 112 are ~~is~~ locked by activation of top mount knob 120. Both rotational joint 157 and the stem clamping mechanism of stem hub assembly 160 are ~~is~~ locked in place by the activation of side mount knob 118. Base 125 is locked in position on the rail by activation of mount lever 122. Ball joint 201, as

will be discussed in greater detail below, may be locked in position by activation of knob 504. This particular sequence of knobs used to lock down the degrees of freedom associated with instrument mount assembly 20 tends to allow the user greater precision in positioning the instrument because degrees of freedom unnecessary to a particular desired maneuver of the instrument can be locked down. Most commonly, mount body 110 is placed at a desired angle or orientation and then fixed in place by locking ball joint 112, leaving final adjustment to take place using rotational joint 157 and the delivery stem movement allowed by the stem clamping mechanism of stem hub assembly 160.

Please amend the paragraph beginning on page 21, line 28 of the specification as follows:

(Currently Amended) Figures 14-20 show in greater detail the various mechanisms which lock and release the joints or connections associated with instrument mount assembly 20. Figure ~~20~~ 14 shows an exploded assembly illustration of instrument mount assembly 20. Instrument mount assembly 20, and more specifically mount base 125 to which all the other components are ultimately secured, is preferably constructed to engage and lock in position on a rail or other suitable feature.

Please amend the paragraph beginning on page 22, line 6 of the specification as follows:

(Currently Amended) Hinge member 115 may be articulated using any suitable mechanism capable of pivoting hinge member 115 to a closed position and holding it there. In a preferred embodiment, best illustrated in Figures 15A-17, hinge member 115 includes follower surface ~~.surface~~ 155 which may be acted upon by any suitable cam device to drive hinge member 115 about hinge pins 123 and 124, thus urging rail grip 116 towards rail grip 114.

Please amend the paragraph beginning on page 25, line 30 of the specification as follows:

(Currently Amended) By rotating cam 235, by way of handle 237, to an open position as illustrated in Figure 25, link pivot 238 is withdrawn to a position closer to contact surface 236 at a distance 252, thus reducing or relaxing the clamping forces between mount body 222 and ~~096~~ ball 224 of mount base 221. With cam 235 in the open position, the friction at ball 224 is reduced to a level that allows the user to easily manipulate mount body 222 relative to mount base 221.

Please amend the paragraph beginning on page 26, line 18 of the specification as follows:

(Currently Amended) Tie pin 240 is preferably driven in the direction of arrow 245 by the movement of base post 230 which is assembled in the space between first and second prongs 262 and 263 of tie pin 240. Preferably, base post 230 has an angled cam or ramp 258 that engages back wall 269 at the base of first and second prongs 262 and 263. As base post 230 is drawn upwards in the direction of arrow 271 by cam 235 from the open position of Figure 25 to the closed position of Figure 24, ramp 258 progressively forces back wall 269, and thus tie pin 240, in the direction ~~of~~ indicated by arrow 245.

Please amend the paragraph beginning on page 27, line 25 of the specification as follows:

(Currently Amended) Preferably, projections 267 and 268 have lead-ins 291 and 292 which urge ~~urged~~ projections 267 and 268 together as they are advanced through hole 279 so that stem grip 226 can simply be aligned with lead-ins 291 ~~292~~ and 292 and then snapped into place without any further action. Alignment of hole 279 is generally quite simply accomplished as the cylindrical exterior surface 277 of sleeve 260 is slidably received in a substantially coaxial arrangement within center bore 219 of clutch member 225. Clutch member 225 may optionally have first and second flexures 281 and 282 having first and second retaining features 283 and 284 so that it may be snapped in place and thereafter retained within mount body 222.

Please amend the paragraph beginning on page 32, line 1 of the specification as follows:

(Currently Amended) operate against upper flange 434 to pre-load base post 430 upwardly so that a minimum amount of frictional ~~fictional~~ forces are maintained in the ball joint between mount base 421 and mount body 422.

Please amend the paragraph beginning on page 33, line 21 of the specification as follows:

(Currently Amended) Referring to Figures 38-42, a preferred stabilizer assembly for stabilizing the beating heart is comprised of a foot or base portion 553 attached to a rigid or semi-rigid delivery stem 3, drawn here, for purposes of example only, as a curved tubular member. Base

portion 553 typically has one or more contact members 1 adapted to contact the heart adjacent the site desired to be stabilized. The contact members 1 may be substantially planar, may be slightly curved to conform to the shape of the heart, or may be a non-conforming curve to establish contact between only a ~~to~~ portion of the contact member 1 and the beating heart. The shape of the contact members may be varied depending on the clinical assessment by the surgeon, the design of the other features of the stabilizing means, or the design of other instruments used to complete the anastomosis. In some embodiments, the contact members 1 may have apertures, openings or attachments to facilitate connection with sutures of other devices to achieve the requisite stabilization, occlusion of the target vessel, or exposure of the target vessel. Examples of suitable base portions and contact members can be found, for example, in ~~co-pending~~ U.S. Patent Application Serial Number 08/931,158 filed on September 16, 1997, now U.S. Patent No. 6,036,641 entitled "SURGICAL INSTRUMENTS AND PROCEDURES FOR STABILIZING THE BEATING

Please amend the paragraph beginning on page 42, line 12 of the specification as follows:

(Currently Amended) If the heart is positioned using sutures, the sutures may be placed through the tissue at the desired location and secured to platform blades 915 and 920. Sutures 945 may be slid into suture holder slots 950 to engage the sutures ~~suture~~. To ensure ~~proper~~ a proper hold, only one suture strand is preferably engaged within each suture holder slot 950. Sutures 945 are released from platform blades 915 and 920 by concurrently pulling back and up on suture 945 while pulling the suture through the suture holder slot 950.